

Partial English translation of  
JP1999(Heisei 11)-276074A(Cited reference Yoshiyuki)

Claim 1

A method for producing a fine ground tea beverage comprising a step of extracting a fine ground tea with water at normal temperature or hot water and adding antioxidant to the extract, and a step of removing large particles of the fine ground tea from the extract by centrifugation.

[Paragraph 0005]

The object of the invention is to provide a method for producing a tea beverage, (1)which contains active ingredient extracted from tea without denaturation, (2)which is free from nonuniform turbidity or precipitation when it is a canned beverage or glass or PET bottled beverage, and (3) which is flavorful and nutrious.

[Paragraph 0007]

The method of the present invention comprises extracting a fine ground tea with water at normal temperature or hot water, rapidly cooling the extract if needed, then, removing large particles of the fine ground tea from the extract by centrifugation or the like. The method allows efficient extraction without denaturation of active ingredients, and can avoid nonuniform turbidity and precipitation in the resultant beverage. Therefore, according to the method of the invention, a tea beverage having excellent flavor, nutritious taste and color can be manufactured. Specifically, the present invention relates to a method for producing a fine ground tea beverage comprising a step of extracting a fine ground tea with water at normal temperature or hot water and adding antioxidant to the extract, and a step of removing large particles of the fine ground tea from the extract by centrifugation.

[Paragraph 0008]

Furthermore, the present invention relates to a method for producing a fine ground tea beverage comprising step (1) of extracting a fine ground tea with water at normal temperature or hot water and adding antioxidant to the extract, step (2) of rapidly cooling the extract obtained by step (1), step (3) of removing large particles of the fine ground tea from the extract by centrifugation, and step (4) of adjusting pH of the extract obtained by step (3).

[Paragraph 0017]

As shown in figure 1(A) as an example, the method for producing a fine ground tea beverage of the present invention has an extracting step and a centrifuging step as essential steps. "The extracting step" means that (a) tea ingredients are eluted from a fine ground tea by adding the fine ground tea to water at normal temperature or hot water and the tea ingredients are dispersed and suspended in the water. In addition, when a fine ground tea obtained by wet grinding is used, "the extracting step" means (a) and that (b) tea ingredients contained in the solution fraction of the fine ground tea obtained by wet grinding are dispersed, suspended or dissolved in the water.

[Paragraph 0020]

A preferable embodiment of the invention is shown below.

[Paragraph 0021]

(Producing method)

A method for producing a fine ground tea beverage of the invention comprises a step of extracting a fine ground tea with water at normal temperature or hot water and adding antioxidant to the extract, and a step of removing large particles of the fine ground tea from the extract by centrifugation.

[Paragraph 0022]

The method for producing a fine ground tea beverage of

the present invention comprises step (1) of extracting a fine ground tea with hot water containing an antioxidant, step (2) of rapidly cooling the extract obtained by step (1), step (3) of removing large particles of the fine ground tea from the extract by centrifugation, and step (4) of adjusting pH of the extract obtained by step (3).

These steps are described below.

[Paragraph 0027]

The temperature of hot water used in the extraction of step (1) is not limited. The temperature can be determined depending on the kind of a fine ground tea, and preferable flavor, nutritious taste and thickness of the extract etc. When the temperature of the water is extremely high, tea ingredients can be easily extracted, however, color of the extract easily changes, and flavorful and nutritious components are degraded and dissipated. In addition, unnecessary components which spoil flavor and nutritious taste are also extracted. Therefore, extremely high temperature of the water is not preferable. On the other hand, when the temperature of the water is extremely low, the tea extract is thin, time required for the extraction becomes long, and it is possible that flavor and nutritious taste of the extract is spoiled. Therefore, extremely low temperature of the water is not preferable. Accordingly, the temperature of water at normal temperature or hot water used in the extraction is 15-70 °C, preferably 25-65°C. The temperature range is preferable for excellent taste and color of the resultant tea beverage. "The water at normal temperature" means water at 15-30°C, and encompasses water which does not require the step of rapidly cooling the extract.

[Paragraph 0033] lines 1-4

(Tea beverage)

The tea beverage of the invention is produced by the above-mentioned method of the invention and contains antioxidant, small particles of a fine ground tea and pH

adjuster.

[Paragraph 0038]

(A fine ground green tea was used in the production of a tea beverage)

Common green tea as raw material was preliminarily pulverized and subjected to wet pulverization using NANOMIZER (manufactured by NANOMIZER Inc.). The product was used as fine ground tea. 20L of a suspension containing 10 wt% of the fine ground tea was added to 400L of water at normal temperature shown below or hot water, and stirred for 3.5 minutes. Then, pH of the extract was adjusted to slightly acidic using 280g of ascorbic acid. Obtained extract was rapidly cooled to 15°C. And then, obtained extract was centrifuged with continuous centrifuge(Tetra Pak, BRPX/V NPX510) under the condition of 7280rpm and 3000L/H(hours). Then, the extract was filled up to 1400L with water. PH of the extract was adjusted to 6.2 by adding L-ascorbic acid(250g), sodium L-ascorbate(300g) and sodium bicarbonate(350g). The extract was subjected to UHT sterilization and sensory evaluation mentioned below.